

## *Curriculum Vitae*

### **Gary J. Pielak**

Department of Chemistry  
University of North Carolina at Chapel Hill  
Chapel Hill, NC 27599-3290  
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### ***Research Interests:***

Protein chemistry and biophysics, especially in living cells.

### ***Employment:***

#### **July 2015-**

Kenan Distinguished Professor of Chemistry

#### **August 2013-2018**

Vice Chair of Facilities in Chemistry

#### **July 2013-July 2015**

Glen H. Elder, Jr. Distinguished Term Professor of Research & Undergraduate Education

#### **January 2013-December 2014**

Program Director, Molecular Biophysics Cluster, Division of Molecular and Cellular Sciences, Directorate for Biological Sciences, the National Science Foundation, Arlington, NC

#### **January 2000-**

Professor of Chemistry, UNC  
Professor of Biochemistry & Biophysics, UNC  
Member, UNC Lineberger Comprehensive Cancer Center

#### **July 2000 - June 2005 & July 2007 - June 2008**

Vice Chair of Undergraduate Studies in Chemistry

#### **January 2000-June 2006**

Faculty Director, UNC Macromolecular Interactions Facility

#### **July 1998 - July 1999**

Sabbatical Visitor: Professor Christopher M. Dobson, F.R.S.  
Oxford Centre for Molecular Sciences  
University of Oxford, England

#### **January 1995-December 1999**

Associate Professor of Chemistry, UNC

#### **January 1989-June 2016**

Co-director UNC Biomolecular NMR Facility

#### **January 1989 - December 1994**

Assistant Professor, UNC  
Member UNC Integrative Program for Biological & Genome Sciences (previously Program in Molecular Biology and Biotechnology)

#### **June 1986 - January 1989**

N.I.H. Postdoctoral Fellow: R.J.P. Williams, F.R.S., M.B.E, deceased  
Inorganic Chemistry Laboratory, University of Oxford, England

#### **March 1983 - June 1986**

N.I.H., Postdoctoral Fellow: Professor M. Smith, F.R.S., deceased  
Department of Biochemistry University of British Columbia  
Vancouver, B.C. Canada

**Education:**

**January 1983**

Ph.D. in Biochemistry  
Laboratory of Professor J. Ivan Legg, deceased  
Department of Chemistry  
Washington State University, Pullman, Washington  
Dissertation: Characterization of Arsanilazo & Sulfanilazo Proteins

**June 1977**

B.A. in Chemistry, *Magna cum Laude*  
Bradley University, Peoria, Illinois

**Teaching/Mentoring:**

**Past Postdocs and Their Current Employer**

Dr. Guifang Wang (Pennsylvania State University)  
Dr. Conggang Li (Chinese Academy of Sciences, Wuhan)  
Dr. Austin Smith (Jaguar Gene Therapy)  
Dr. Thomas Boothby (U. Wyoming)

**Current Postdocs**

None

**Current Graduate Students**

Mr. Oskar Hutcheson  
Ms. Julia Brom  
Ms. Jordyn Markle

**Past Graduate Students and Their Current Employer**

Dr. Claire Stewart (Stanford)  
Dr. I-Te Chu (Harvard)  
Dr. Jonathan (Jack) Eicher  
Dr. Joseph 'Joey' Thole (NIH)  
Ms. Sasiprapa Jeab Sasiprapa (visitor from Thailand)  
Dr. Candice Crilly  
Dr. Shannon Speer (Pfizer)  
Dr. Samantha (Sam) Stadmiller (Lindy Biosciences)  
Dr. Samantha (Pixie) Piszkiwicz (UC Berkeley)  
Dr. Alex Guseman (Pitt)  
Dr. Annelise Gorensek (Colorado College)  
Dr. Rachel Cohen (SprinWorks Therapeutics)  
Dr. Austin Smith (Jaguar Gene Therapy)  
Dr. Michael Senske (visitor from Germany, FC Bayern München)  
Ms. Torii Sutherland (US Coast Guard)  
Dr. William Monteith (Alector)  
Dr. Mohona Sarkar (KBI)  
Dr. Jillian Tyrrell (Biocare Medical)  
Dr. Yaqiang Wang (Arrakis Therapeutics)  
Ms. Laura Benton (Holy Orders)  
Dr. Imola-Gabriela Zigoneanu (Biomedical Engineering, UNC)  
Dr. Alex Schlesinger (AgBiome)  
Dr. Andrew Miklos (NIH)  
Mr. Christopher Barnes, M.A. (Stanford)

### **Past Graduate Students and Their Current Employer, cont'd**

Dr. Rebecca Ruf  
Mr. Matthew Hrabak, M.S. (Naval Surface Warfare Center)  
Dr. Kristin Slade (Hobart and William Smith Colleges)  
Dr. Lisa Charlton (ERT)  
Dr. Brian McNulty (Athenix)  
Dr. Julie Bryant (Merck)  
Dr. Alina Olteanu (Private practice, Houston)  
Dr. Dana Albion (Moses Cone Mem. Hosp.)  
Dr. Fang Yi (Centocor)  
Dr. Chetan Patel (Lilly)  
Dr. Artemiza Morar (GlaxoSmithKline)  
Mr. Xuming Wang, M.A. (Intel)  
Dr. Gresham Weatherly (AbbVie)  
Dr. Paula Davis-Searles (Diosynth)  
Dr. Jennifer Waldner  
Ms. Devon Allen, M.S. (Diosynth)  
Dr. David Cohen (Advanced Liquid Logic)  
Dr. Aleister Saunders (Drexel)  
Dr. Jennifer Marmorino  
Dr. Donald Doyle (Georgia Tech.)  
Dr. James Beasley, (Venenum)  
Dr. Lixin Chen (New Engl. Biolabs)  
Dr. Zoey Fredericks (Amgen)  
Dr. Douglas S. Auld (Novartis)  
Dr. Stephen F. Betz (Crinetics)  
Dr. Sharon Hilgen-Willis (Integral Molecular)  
Ms. Xuhong Wang, M.A. (Synermore Biologics)

### **Past STEM Teacher-researcher Fellows**

Ms. Candice Jackson, Thomasville High School (2011)  
Mr. Oryan Lowry, South Robeson High School (2012)

### **Current Undergraduate Students**

Ms. Ruta Petrikis  
Mr. Thomas Redvanly  
Mr. Owen Young  
Mr. Hudson Malsch  
Mr. Joshua Bourque

### **Past Undergraduates and Where They Went Next**

Ms. Ashlee Propst (UNC)  
Ms. Penelope Mewborn (UNC Nutrition)  
Ms. Shikun 'Rinco' Wang (Yale)  
Ms. Sophia Hazlett (University College London)  
Mr. Francis Lauzier (Wayne State)  
Mr. Octavio Origel (Northwestern)  
Mr. Owen Warmuth (Wisconsin)  
Ms. Shreya Nakkala (UNC)  
Mr. Jhoan Aguilar (Postbac UNC)  
Mr. Gustavo Panduro (UNC)  
Mr. Gerardo Perez (MIT)  
Mr. Cody Weyhrich (Virginia Tech)  
Mr. Aakash Mehta (NIEHS)  
Mr. Anthony Arrington (UNC Pembroke)

**Past Undergraduates and Where They Went Next, cont'd**

Mr. Kenny Nguyen (GSK)  
Mr. Luis Acosta (Actuarial School)  
Mr. Thomas Lanier (UNC)  
Mr. Larry Zhou (NIH)  
Mr. Eduardo Guizan (Pharmacy School, UNC)  
Mr. Emilio Guzman (Med. School, UNC)  
Mr. Joe Lu (Actuary School)  
Ms. Beth Willard (Disney World)  
Mr. Vishavpreet 'Ricky' Singh (Med. School, UNC)  
Mr. Alexander Krois (Grad. School, Scripps)  
Ms. Yuri Yang (Technician, U. Toronto)  
Ms. Amanda Rosett (SURE, back to Susquehanna U.)  
Ms. Kristen Black (Colegio Bilingüe New Horizons, Dominican Republic)  
Mr. Emmanuel Chan (Technician, UNC)  
Ms. Heidi Scronce (Technician, Duke)  
Ms. Niama Sharaf (Grad. School, Pitt)  
Mr. Christopher Barnes (Grad. School, Chemistry, UNC)  
Mr. Evan Lutz (Med. School, ECU)  
Ms. Sandy An (MD/PhD program, Wake Forest, U.)  
Mr. Hao Wu  
Ms. Hayley Fischer (Med. School, ECU)  
Ms. Michelle Mian (Dental School, Harvard)  
Ms. Essraa Bayoumi  
Mr. Michael Minder (Med. School, Duke)  
Mr. Chris Kragel (Med. School, ECU)  
Mr. Devin Barrett (Grad. School, Chemistry, UNC)  
Mr. Joseph Batchelor (University of California, Berkeley)  
Mr. Matthew Dedmon (Grad. School, University of Cambridge, UK)  
Mr. Scott Kennedy (Grad. School, UNC)  
Ms. Maria Lind (Grad. School, UGA)  
Mr. Ikey Kakouras (Duke)  
Ms. Kimberly Clay (Med. School, UNC)  
Ms. Amret Thompson (Med. School, Wake Forest)  
Mr. Daniel Hostetter (Grad. School, Stanford)  
Ms. Melisa Lehti (Grad. School, Botany, Wisconsin)  
Mr. Phil Hardwidge (Grad. School, Immunology, Mayo Clinic)  
Mr. Sherif Ghobrial (Grad. School, Env. Sci. & Eng., UNC)  
Mr. Chetan Patel (Grad. School, Chemistry, UNC)  
Ms. Sonja Trojak (Med. School, UNC)  
Mr. Bryan Fine (Med. School, U South Florida)  
Ms. Xecerla Littles (Med. School, Tulane)  
Ms. Shelly Finger (Vet. School, Texas A&M)  
Mr. Luiz Alcazar-Roman (Grad. School, Chemistry)  
Mr. Harvey Chui (Med. School, UNC)  
Ms. Kara Bortone (Grad. School, Chemistry, U. Texas)  
Mr. Sudip Parikh (Grad. School, Biochem., Scripps)  
Mr. Richard Bruick (Grad. School, Biochem., Scripps)  
Ms. Andrea Lee (Grad. School, Biochemistry, Scripps)  
Mr. Mark Dransfield (Med. School, UNC)  
Ms. Jennifer Fencl (Grad. School, Chemistry, UNC)  
Ms. Tori Williams (Grad. School, Yale)  
Ms. Malika Rauf (back to North Chapel Hill High)  
Ms. Melanie Wiley (U. Maryland, then MD/PhD program, U. South Carolina)  
Ms. Ashlee Propst (NC State)

**Past High School Students and Where They Went Next**

Ms. Hanna Qu (Research Triangle High)  
Ashlee Propst (NC State)

**Courses:**

**UNC**

Advances in Macromolecular Structure  
Macromolecular Structure and Metabolism  
Macromolecular Interactions  
Practical Protein NMR  
First Semester General Chemistry  
First Year Seminar: You don't have to be a rocket scientist.  
General Biochemistry  
Protein Chemistry  
Enzyme Mechanisms  
Molecular Biology Laboratory  
Practical Oligonucleotide-Directed Mutagenesis

**Oxford**

Biophysics Tutor. New College, 1988

**Cold Spring Harbor**

Advanced Cloning Course, 1984, 1987  
Advanced Techniques in Molecular Biology

**University of British Columbia**

Site-specific Mutagenesis Directed by Oligodeoxyribonucleotides, 1985

**Service:**

**Current Committee Assignments in Chemistry**

Personnel Committee  
Teaching Assistant Professor Search Committee  
Staff Awards/Recognition  
Approximately 10 Ph.D. Committees  
Approximately 5 Undergraduate Honors Committees

**Past Committee Assignments in Biochemistry & Biophysics**

Biophysics Search Committees; Campbell, Lee, and Kuhlman  
Biomolecular NMR core director search, 2018  
Assistant Professor search, UNC Biochemistry & Biophysics, 2019

**Past Committee Assignments in Chemistry**

Personnel Committee  
Teaching Assistant Professor Search Committee 2019  
Executive Committee, 2015-2020  
CHEM 550L Efficacy Committee, 2019-2019  
X-Ray Core Director Search, 2018  
NMR Core Search, 2018, 2019  
Mass Spec Core Search, 2018  
Vice Chair of Chemical Research Instrumentation Teaching & Core Laboratories,  
2014-2018  
Lecturer Search, 2016-2017  
Mass Spectroscopy Core Director Search, 2014  
Post Tenure Review Committee, 2011-2012, 2020-  
Graduate Studies Committee, 2010-2011  
Graduate Recruiting Committee, 2010-2011

### **Past Committee Assignments in Chemistry, continued**

Strategic Planning Committee, 2009 - 2010  
2010 Departmental Program Review Committee  
NMR Committee  
Undergraduate Studies Committee, 1992-2008, 2012-2013  
Inorganic Search Committee, 2009  
Vice Chair of Undergraduate Studies, 2000-2005, 2007- 2008  
Chair Selection Committee, 2007  
Ad hoc member Parking Committee  
Search Committees; Forbes, Thorp, Erie, Morken, and Weeks  
Genomics Search Committee, 2001  
Several Promotion/Tenure Committees

### **Current/Past University Service**

University Teaching Awards Committee, 2018, 2019, 2020, 2023  
University Distinguished Professorship Committee, 2017  
Distinguished Dissertation Faculty Review, 2014, 2015  
COI Monitoring Committee (Redinbo), 2014  
Cross-listed Courses Task Force, 2012  
Independent Studies Task Force, 2011  
Chair, Curriculum Review Committee, Miscellaneous Subcommittee, 2010  
University Research Day Judge, 2010  
Chair, Admissions Committee, Biological & Biomedical Sciences Program, 2008  
Administrative Boards of the General College, 2003-2013  
Mock interviews for the Gates-Cambridge and Churchill Fellowships through the Office of Distinguished Scholarships, 2007  
Reviewer, Smallwood Undergraduate Summer Research Grants, 2006  
Summer Undergraduate Research Fellowship Committee, 2007-2010, 2015, ...2018, 2023  
Mock interviews for the Gates-Cambridge and Churchill Fellowships through the Office of Distinguished Scholarships, 2007  
Undergraduate Orientation (CTOPS) Professor's Perspective sessions, 2006, 2007, 2008, 2015, 2016, 2017  
Financial Exigency and Program Change Committee, 2006-2008  
Reviewer, Postdoctoral Awards for Research Excellence, Office of Postdoctoral Services, 2005  
Division of Natural Sciences Curriculum Committee  
General Education Implementation Committee for the New Undergraduate Curriculum, 2002 - 2003  
UNC Curriculum Review, Committee N  
Faculty Council  
Rhodes Scholarship Mock Interview Committee  
Churchill Scholarship Selection Committee  
Admissions Committee, Program in Molecular & Cellular Biophysics  
Advisory Committee, Curriculum in Applied Sciences  
Biomolecular NMR Facility Committee  
Macromolecular Interactions Facility Committee  
Summer Undergraduate Research Program Selection Committee  
Graduate Student Committees:  
Environmental Sciences  
Engineering, Biochemistry & Biophysics,  
Immunology/Microbiology  
Cell & Developmental Biology  
Presenter, Project Uplift  
Presenter, NC Renaissance Program

**Regional/National/International Service**

2019 Judge Annual Biomedical Research Conference for Minority Students (ABRCMS)  
2016 Outside Honors Examiner, Hobart and William Smith Colleges  
2016 Chair, Biophysics *in vivo* subgroup of the Biophysical Society  
2015 Chair-elect, Biophysics *in vivo* subgroup of the Biophysical Society

**Regional/National/International Service, continued**

2011-2015, Member at Large, Biophysics *in vivo* subgroup of the Biophysical Society  
2013-2014 Program Director, Molecular Biophysics Cluster, Division of Molecular and Cellular Sciences, Directorate for Biological Sciences, the National Science Foundation  
Faculty Search Committee Biochemistry, Washington State University, 2003  
One or more tenure/promotion letters per year

**Ph.D. Committees**

Duke, Georgia Tech., University of Barcelona, Yale

**Manuscript Referee**

ACS Chemical Biology  
Angewandte Chemie  
Archives of Biochemistry and Biophysics  
Biochemistry  
Biochimica et Biophysica Acta  
Accounts of Chemical Research  
Biochimie  
Biomacromolecules  
Biophysical Chemistry  
Biophysical Journal  
Biopolymers  
BioTechniques  
Biotechnology  
BMC Biology  
ChemBioChem  
Chemical Neuroscience  
Chemical Physics Letters  
Coordination Chemistry Reviews  
Crystal Growth & Design  
FEBS Letters  
Folding and Design  
Frontiers of Molecular Biosciences  
*Inorganica Chimica Acta*  
Inorganic Biochemistry  
International Journal of Biological Macromolecules  
Journal of the American Chemical Society  
Journal of Biological Chemistry  
Journal of Biological Inorganic Chemistry  
Journal of Biomolecular NMR  
Journal of Chromatography  
Journal of Inorganic Biochemistry  
Journal of Chromatography  
Journal of Magnetic Resonance



### **Manuscript Referee, continued**

Journal of Molecular Biology  
Journal of Physical Chemistry  
Journal of Physical Chemistry Letters  
Journal of Proteome Research  
Macromolecules  
Magnetic Resonance Letters  
Molecular Pharmaceutics  
Nature  
Nature Methods  
Nature Structural Biology  
Nucleic Acids Research  
Physical Chemistry Chemical Physics  
Protein Science  
Proteins: Structure, Function, Genetics/Bioinformatics  
Proceedings of the National Academy of Sciences, U.S.A.  
Scientific Reports  
Softmatter

### **Editorial Duties**

1998-1999	Paper Alerts contributor, <i>Current Opinions in Structural Biology</i>
2011-	Editorial Advisor, <i>BMC Biophysics</i>
2017-	Editorial Advisory Board. <i>Protein Science</i>
2021-	Editorial Board, <i>Magnetic Resonance Letters</i>

### **Proposal Review**

#### **Panels**

Graduate Women in Science Scholarships  
Internal Review for Lockheed Martin 2010 University Research Initiative  
University Cancer Research Fund, 2009  
NIH New Innovators Award, 2008, 2009  
NSF Molecular Biochemistry Review Panel. Many times.  
NIH Special Emphasis Panel to review proposals in response to RFQ NIH  
ES2007006, entitled "Scientific Research Analysis," 2007  
NIH NIH-NIDDK, Kidney, Urologic and Hematologic Diseases D  
Sub Committee, 2007  
Gordon Research Foundation, 2005  
NIH Physical Biochemistry Study Section, Ad hoc, 1996  
NIH Metallobiochemistry Study Section, Ad hoc, 2001  
NIH Special Emphasis Panel: Technology Development for Biomedical  
Applications, 2001  
NIH Macromolecular Structure & Function A Study Section, Ad hoc, 2011

### **Ad Hoc, Mail/Email Reviews**

Stanford Synchrotron Radiation Lightsource  
Czech Science Foundation  
Danish Council for Independent Research  
Experimental Program to Stimulate Competitive Research,  
French National Research Agency (ANR)  
Israel Science Foundation  
National Science Centre Poland  
Netherlands Organisation for Scientific Research  
NSERC Canada  
Petroleum Research Fund

***Ad Hoc, Mail/Email Reviews, continued***

Research Corporation  
Switzerland: ETH Zurich Research Commission  
UK: BBSRC, MRC, Wellcome  
U.S.: AAAS Research Competitiveness Program, Cottrell NSF, Nebraska  
Wellcome trust/DBT India Alliance

***Meetings Organized/Convened***

8<sup>th</sup> International Symposium on the Higher Order Structure of Protein  
Therapeutics (HOS), San Mateo, 2019  
Program Committee, Protein Society Symposium, Barcelona, 2015  
Program Committee Chair, 26<sup>th</sup> Annual Protein Society Symposium, 2012

***Meetings Organized/Convened***

Biophysics Society Subgroup, Biopolymers in vivo, 2012  
Chemistry Spectrum: recruiting high school students interested in science to  
UNC, 2008  
Co-chair Proteins Gordon Research Conference, 2007  
Vice Co-chair Proteins Gordon Research Conference, 2005  
Triangle Biophysics Symposium, 1998  
Glaxo-Wellcome UNC Symposium, 1989, 1998  
Protein Structure Minisymposium, 1993  
Southeastern Magnetic Resonance Conference, 1993  
Second Carolina Conference on Protein Engineering, 1989

**Research:**

**Current Grants**

Mechanism of protein protection by desiccation-tolerance molecules

Source: NSF, CHE, CLP 2203505

Total award amount: \$495,000

Total period covered: 09/01/2022-08/31/2025

Macromolecular Crowding and Protein Stability In Vitro and in Cells

Source: NSF, MCB 1909664

Total award amount: \$968,151

Total period covered: 08/01/19-07/31/23

**Recent Grants**

Impact of cosolutes on protein folding

Source: United States - Israel Binational Science Foundation

Total award amount: \$216,000

Total period covered: 08/01/18-07/31/22

Protein stabilizers from tardigrades

Source: National Institutes of Health 1 R01 GM127291-01A1

Total award amount: \$1,172,000

Total period covered: 12/01/2018 - 11/30/2021

MRI: Acquisition of a Mass Spectrometer (Co-PI)

Source: NSF 1726291

Total award amount: \$1,157,551

Total period covered: 08/15/2017 - 07/31/2020

MRI: Purchase of a 600 MHz spectrometer for high-sensitivity NMR

Source: NSF CHE 1828183

Total award amount: \$444750

Total period covered: 08/01/18 - 07/31/2020

Protein stabilizers from tardigrades

Integrative Program for Biological and Genome Sciences

Total award amount: \$30,000

Total period covered: 09/01/2018-08/31/2019

Tardigrade proteins as Novel Pharmaceutical Excipients

Source: North Carolina Biotechnology Center

Total award amount: \$75,000

Total period covered: 07/01/18-06/30/19

Macromolecular Crowding and Protein Stability In Vitro and in Cells

Source: NSF MCB 1410854

Total award amount: \$ 990,000

Total period covered: 09/01/14-08/31/19

Encapsulation and Protein Stability

Source: NSF CHE 1607359

Total award amount: \$ 353927

Total period covered: 07/01/2016-06/30/2018

Intergovernmental Mobility Award

Source: NSF 1410854

Total award amount: \$171,167  
Total period covered: 12/31/12 – 06/31/13

Macromolecular Crowding and Protein Stability In Vitro and in Cells  
Source: NSF MCB 1051819  
Total award amount: \$ 792,597.00  
Total period covered: 02/01/11-01/31/14

E.T.S. Walton Visitor Award: Protein Chemistry in Living Cells  
Source Science Foundation of Ireland  
Total award amount: \$57,484  
Total period covered: 01/01/12-12/30/12

In-Cell NMR of Disease-Related Proteins  
NIH Pioneer Award 5DP1OD783  
Total award amount: \$3,750,000  
Total period covered: 10/01/2006 – 09/31/2011

Protein Biophysics in Cells,  
Source: NSF MCB 0516547  
Total award amount: \$592,931  
Total period covered: 03/01/2006 – 02/28/2009

Electron Transfer Proteins  
Source: NIH R01GM020488 (Francis Millett, PI)  
Total award amount: \$87,300 (to my laboratory)  
Total period covered: 08/01/03 – 07/31/08  
This was a subcontract to Professor Francis Millett's NIH grant. Prof. Millett is at the University of Arkansas. Our laboratories have collaborated on protein electron transfer for over 10 years. The funds support our work to produce cytochrome c variant proteins.

Perturbation Calorimetry & Protein Surface Area  
Source: PRF 42748-AC4  
Total award amount: \$80,000  
Total period covered: 05/01/05-08/31/07

Protein Biophysics in Cells  
Source: NSF MCB 0212939  
Total award amount: \$446,735  
Total period covered: 09/01/02 – 08/31/05

Patterned Library Analysis  
Source: NIH R01GM058665 (Marshall Edgell, PI)  
Total award amount: \$ 873,000  
Total period covered: 07/01/00 – 06/30/04  
co-PI with Marshall Edgell on this grant.

Free Radicals, Proteins Aggregates & Parkinson's Disease  
Source: NIH R21 ES 10774  
Total award amount: \$290,000  
Total period covered: 10/01/00 – 9/30/02

Cytochrome c & Apoptosis  
Source: NSF MCB0109366  
Total award amount: \$145,000

Total period covered: 9/01/01-8/31/02

Expansion of the UNC Macromolecular Interactions Facility

Source: North Carolina Biotechnology Center

Total award amount: \$88,895

Total period covered: 7/01/2001-6/30/2003

Protein Hydrogen Bonding and NMR Redox Shifts of Cytochrome c

Source: PRF

Total award amount: \$60,000

Total period covered: 6/01/00-5/31/02

Replacement of a Failed Centrifuge Rotor

Source: University Research Council

Total award amount: \$4,000

Total period covered: 6/01/00-5/31/02

Bringing State-of-the-art NMR to UNC

Source: University Research Council

Total award amount: \$2,500

Total period covered: 1/01/00-12/31/01

### **Honors:**

DuPont Young Faculty Award

Morrow Young Faculty Award

Folding & Binding Paper Alert selector for *Current Opinions in Structural Biology*, 1997-1998

Underwood Fund Award (BBSRC, U.K.)

Invited Speaker, Proteins Gordon Conference, 2001

Invited Speaker, Biopolymers Gordon Conference, 2002, 2010

Invited Speaker, RASMB Gordon Conference, 2002

Invited Speaker FASEB Meeting: Protein Folding in the Cell, 2002

Invited Speaker, Toronto Chemical Biophysics Symposium, 2003, 2011

Invited Speaker 13th Conversation in Biomol. Stereodynamics, 2003

Invited Speaker, 18th Annual Gibbs Conference on Biothermodynamics, 2004

Invited Speaker, Eighth Johns Hopkins Folding Meeting, 2005

Invited Speaker, Colorado Protein Stability Conference, 2005

Invited Speaker, Cellular Osmoregulation: Sensors, Transducers & Regulators  
GRC, 2005

Invited Speaker Trends in Microcalorimetry 2005

Session Chair, Proteins GRC, 2005

Vice co-chair Proteins Gordon Research Conference, 2005

NIH Pioneer Award, 2006

Co-chair Proteins Gordon Research Conference, 2007

Invited Speaker, Southeast Magnetic Resonance Conference, 2007

Invited Speaker, Ions & Osmolytes Symposium, Salt Lake City ACS Meeting,  
2008

Plenary Speaker, Beijing Conference & Exhibition on Instrumental Analysis, 2011

Program Committee Chair, 26<sup>th</sup> Annual Protein Society Symposium, 2012

Science Foundation of Ireland, E.T.S. Walton Visitor Award

Invited Speaker, Molecular Crowding: Chemistry & Physics Meet Biology  
(Switzerland), 2012

Invited Speaker, 12th Chianti/INSTRUCT Workshop on BioNMR (Italy) 2012

Invited Speaker, EUROMAR (Dublin, Ireland), 2012

**Honors, continued**

Glen H. Elder, Jr. Distinguished Term Professor of Research and Undergraduate Education, 2013-  
 Invited Speaker, Annual Protein Society Symposium, 2013  
 Invited Speaker, American Chemical Society National Meeting, New Orleans, April 7-11, 2013  
 Invited Speaker Graduate School Solvation Science Summer School, Bochum Germany, June 10-13, 2014

Invited Speaker Annual Meeting of the Biophysical Society of Japan. September 25-27, 2014  
 TC Wang Lecturer, Wuhan Institute of Physics and Mathematics, Chinese Academy of Sciences, March 18, 2015  
 Kenan Distinguished Professorship 2015-2016 Chair, Biophysics *In Vivo* subgroup of the Biophysical Society  
 Invited Speaker, EMBO Conference on The Biochemistry and Chemistry of Biocatalysis: From Understanding to Design, Oulu, Finland, June 2016  
 Carl Brändén Award from the Protein Society, 2016  
 Invited Speaker, Intrinsically Disordered Proteins: Structure, Function & Interactions, Philadelphia, August 23  
 Invited Speaker, Nobel Symposium on Protein Folding: From Mechanisms to Impact on Cells, Stockholm, Sweden, June 11-14, 2017  
 University Mentor Award for Lifetime Achievement from UNC-CH. 2017  
 Invited Speaker, First International Symposium on Chemistry for Multimolecular Crowding Biosystems, Kobe, Japan, December 12-13, 2017  
 Invited Speaker, Physical and Quantitative Understanding of Cells at Molecular Level, Chemical Society of Japan, Kyoto, December 14-16, 2017  
 Invited Speaker, Mini-workshop on Protein Biophysics: Interplay Between Experiments and Theories, Kyoto University, December 18, 2017  
 Invited Speaker, EMBO Workshop, *In situ* methods in Cell Biology and Cellular Biophysics, Berlin, July 26-28, 2018  
 Invited Speaker, Gibbs Conference on Biothermodynamics, Carbondale, IL, October 6-9, 2018  
 Invited Speaker, 11<sup>th</sup> Biennial Carolina Biophysics Symposium, October 25, 2018  
 Invited Speaker, Intrinsically Disordered Protein Subgroup Symposium, Biophysical Society Meeting, Baltimore, March 2, 2019  
 Bradley University 2018 College of Liberal Arts and Sciences Distinguished Alumnus Award  
 UNC-CH 2019 Excellence in Basic Science Mentoring Award  
 Invited Speaker, 20th Conversation in Biomolecular Structure and Dynamics, Albany, June 13 & 14, 2019 (2 talks)  
 Invited Speaker, Workshop on Macromolecular Crowding, Telluride, CO, July 16-20, 2019  
 Invited Speaker, Workshop on Intrinsically-Disordered Proteins, Telluride, CO, July 16-20, 2019  
 Invited Speaker, ACS Fall National Meeting, San Diego, August 25-29  
 Invited Speaker, The Dr. and Mrs. Satti Paddi and Parvarti Reddy Public Lecture, Understanding Protein Behaviour in Living Cells, Memorial University, St. John's, Newfoundland, Canada, October 17  
 Invited Speaker, Protein Folding Dynamics Gordon Research Conference, Galveston, TX, January 5-9, 2020  
 Plenary Lecture, EUROMAR, Portorož, Slovenia, remote, July 2021  
 Invited Speaker, German Biophysical Society (DGfB) Meeting Konstanz, Germany, September 2022

***Honors, continued***

- Invited speaker, Specificity Determinants of Biomolecular Interactions, commemorating the late professor Aharon Katzir, Rehovot Israel, November 29, 2022
- UNC Johnston Teaching Excellence Award, 2023
- McElvian Lecture, Department of Chemistry, University of Wisconsin, Madison, February 21, 2023
- UNC Faculty Award for Excellence in Doctoral Mentoring, 2023
- Invited speaker, Prague Protein Spring meeting, May 4-6, 2023
- Invited speaker, Gesellschaft Deutscher Chemiker, Braunschweig, Germany, April 5, 2023
- Invited speaker, Telluride Workshop on Macromolecular Crowding, Telluride, CO, June 5-9
- Invited speaker, Biomolecules and Nanostructures meeting, Zakopane, Poland, June 14-18
- Invited speaker, Protein Folding Dynamics Gordon Research Conference, Galveston, TX, January 7-12, 2024

**Research Seminars:**

**May 1, 2023-April 30, 2024**

Prague Protein Spring meeting, May 4-6, 2023  
Gesellschaft Deutscher Chemiker, Braunschweig, Germany, April 5, 2023  
Telluride Workshop on Macromolecular Crowding, Telluride, CO, June 5-9  
Biomolecules and Nanostructures meeting, Zakopane, Poland,  
June 14-18  
Protein Folding Dynamics Gordon Research Conference, Galveston, TX,  
January 8

**May 1, 2022-April 30, 2023**

ACS Fall National Meeting, August 21  
German Biophysical Society (DGfB) Meeting Konstanz, Germany,  
September 20-23  
Specificity Determinants of Biomolecular Interactions, commemorating the late  
professor Aharon Katzir, Rehovot Israel, November 29  
McElvian Lecture, Department of Chemistry, University of Wisconsin, Madison,  
February 21  
Department of Biochemistry and Biophysics, UNC-Chapel Hill, April 25

**May 1, 2021-April 30, 2022**

Plenary lecture, EUROMAR, Portorož, Slovenia (remote), July 4-8  
Tulane, February 14  
Institute of Pharmacology and Structural Biology, Toulouse (remote), March 15

**May 1, 2020-April 30, 2021**

ACS Fall National Meeting (virtual), August 17  
BASF (virtual), September 23

**May 1, 2019-April 30, 2020**

20<sup>th</sup> Conversation in Biomolecular Structure and Dynamics, Albany,  
June 13 & 14 (2 talks)  
Workshop on Macromolecular Crowding, Telluride, CO, July 16-20  
Workshop on Intrinsically-Disordered Proteins, Telluride, CO, July 16-20  
ACS Fall National Meeting, San Diego, August 25-29  
The Dr. and Mrs. Satti Paddi and Parvarti Reddy Public Lecture, Understanding  
Protein Behaviour in Living Cells, Memorial University, St. John's,  
Newfoundland, Canada, October 17  
Department of Chemistry, Memorial University, St. John's, Newfoundland,  
Canada, October 18  
Protein Folding Dynamics Gordon Conference, Galveston, TX, January 5-9  
University of Colorado, Denver, CO, March 6.

**May 1, 2018-April 30, 2019**

Suzhou Institute of Biomedical Engineering, Suzhou, China, May 10  
Soochow University, Suzhou, China, May 11  
Wuhan Institute of Physics and Mathematics, Chinese Academy of Sciences,  
Wuhan, China, May 17  
EMBO Workshop, *In situ* methods in Cell Biology and Cellular Biophysics,  
Berlin, July 26-28  
2018 Gibbs Conference on Biothermodynamics, Carbondale, IL, October 6-9  
Appalachian State University, Boone, NC, October 19  
11<sup>th</sup> Biennial Carolina Biophysics Symposium, October 25  
Bradley University, November 19  
Weizmann Institute, Rehovot, Israel, January 29  
Fritz Haber Lecture, Hebrew University, Jerusalem, January 31



2019 Intrinsically Disordered Protein Subgroup Symposium, Biophysical Society Meeting, Baltimore, March 2, 2019  
Wuhan Institute of Physics and Mathematics, Chinese Academy of Sciences, Wuhan, China, March 27

**May 1, 2017-April 30, 2018**

China-Japan Joint Symposium on Functional Supramolecular Systems, Wuhan China, May 16  
Wuhan Institute of Physics and Mathematics, Chinese Academy of Sciences, Wuhan, China, May 19  
Nobel Symposium on Protein Folding: From Mechanisms to Impact on Cells, Stockholm, Sweden, June 11-14  
New England Biolabs, December 7  
First International Symposium on Chemistry for Multimolecular Crowding Biosystems, Kobe, Japan, December 12-13  
Physical and Quantitative Understanding of Cells at Molecular Level, Chemical Society of Japan, Kyoto, December 14-16  
Mini-workshop on Protein Biophysics: Interplay Between Experiments and Theories, Kyoto University, December 18  
Penn State University, February 22  
UNC-CH, Department of Biochemistry and Biophysics, April 24

**May 1, 2016-April 30, 2017**

Appalachian State University, April 21  
University of Wisconsin, March 3  
Loyola University New Orleans, February 13  
ACS Fall National Meeting, Philadelphia, August 21-25  
Annual Protein Society Symposium, Baltimore, July 16-19  
Ruhr-University Bochum, Germany, June 23  
Leibniz-Institut für Molekulare Pharmakologie (FMP), Berlin, June 20  
EMBO Conference on The Biochemistry and Chemistry of Biocatalysis: From Understanding to Design, Oulu, Finland, June 12-15

**May 1, 2015-April 30, 2016**

Higher Order Structure Conferences, Long Beach, CA, April 11-13  
Hobart and William Smith Colleges, April 28

**May 1, 2014-April 30, 2015**

Workshop on Macromolecular Crowding, Telluride, CO, June 23-27  
Washington Area NMR Group, December 4  
California Separation Science Society, Higher Order Structure (CASSS-HOS) April 11-13

**May 1, 2014-April 30, 2015**

Graduate School Solvation Science Summer School, Bochum Germany, June 10-13  
Novartis, Emeryville, July 22  
Annual Meeting of the Biophysical Society of Japan, Sapporo, September 26  
Tokyo Metropolitan University, September 30  
University of North Carolina-Chapel Hill, October 8  
University of Virginia, November 7  
School of Life Sciences, U. of Science & Technology of China, Hefei, March 13  
TC Wang Lecturer, Wuhan Institute of Physics and Mathematics, Chinese Academy of Sciences, March 18

**May 1, 2013-April 30, 2014**

Workshop on Macromolecular Crowding, Telluride, CO, June 25-29  
Annual Protein Society Symposium, Boston, July 20-24  
National Institute of Environmental Health Science, RTP, NC, September 5  
University of Maryland, November 18  
University of Puerto Rico, Rio Piedras Campus, November 22  
Simon Fraser University, Vancouver, BC Canada, December 6  
University of British Columbia, Vancouver, BC Canada, December 9  
Florida State University, Tallahassee, January 21  
Johns Hopkins, March 10  
UNC Greensboro, March 28

**May 1, 2012-April 30, 2013**

University of Durham (UK), June 1  
National University of Ireland, Galway, May 28  
Molecular Crowding: Chemistry and Physics meet Biology (Switzerland), June 12  
12th Chianti/INSTRUCT Workshop on BioNMR (Italy) June 18  
EUROMAR (Dublin, Ireland), July 1  
University of Tennessee, October 17  
ACS Southeastern Regional Meeting (SERMACS). Raleigh, NC, November 16  
Drexel University, February 18  
University of Pennsylvania, Hershey, March 18  
American Chemical Society National Meeting, New Orleans, April 7-11

**May 1, 2011-April 30, 2012**

Yale, March 19  
King's College London, January 20  
National Institute for Medical Research (UK), January 19  
University of Oxford (UK), January 17  
National Institutes of Health Pioneer Symposium, September 21  
Beijing Conference & Exhibition on Instrumental Analysis, Oct 13  
National Science Foundation, June 8  
University of Minnesota Duluth, May 26

**May 1, 2010-April 30, 2011**

University of Toronto, June 3  
Biopolymers Gordon Conference, June 6-11  
IRB Barcelona, July 2  
Swedish Royal Academy of Sciences, August 26  
James Madison, September 3  
Biological Diffusion & Brownian Dynamics Brainstorm 2 (Heidelberg, Germany)  
October 11  
University of Indiana, October 25  
National Science Foundation, November 10  
University of Wisconsin, Madison, November 23  
Toronto Chemical Biophysics Symposium, April 9

**May 1, 2009 – April 30, 2010**

University of Richmond, September 4  
UCLA, March 11  
Davidson, January 29

**May 1, 2008 – April 30, 2009**

Biophysical Society Workshop on Protein Folding, Stability, and Aggregation,  
Boston, March 3  
Symposium on the Influence of Ions & Osmolytes on Aqueous Macromolecules,  
ACS Meeting, Salt Lake City, March 23

Workshop on Macromolecular Crowding, Telluride, CO, July 6-10  
UNC Wilmington, September 28  
Appalachian State University, November 21

**May 1, 2007– April 30, 2008**

UNC Chemistry, September 12  
NIH Pioneer Symposium, September 19  
University of Kansas, October 5  
Southeastern Magnetic Resonance Conference, U. Alabama November 10  
Honors Chemistry, UNC, November 19

**May 1, 2006– April 30, 2007**

UNC, Chemistry, September 6  
Duke, Biochemistry, October 2  
University of Pennsylvania, Biophysics, October 18  
Drexel University, Bioscience and Biotechnology, October 19  
Virginia Tech, Chemistry, January 26  
Biophysical Society, Intrinsically Disordered Proteins Subgroup, Baltimore,  
March 3  
Seeing is Believing: The Future of Molecular and Biomolecular Imaging Meeting,  
Duke, March 11  
UNC, Biochemistry & Biophysics, April 17

**May 1, 2005 – April 30, 2006**

Colorado Protein Stability Conference, Breckenridge, CO  
Trends in Microcalorimetry, Boston, MA

Cellular Osmoregulation: Sensors,  
Transducers & Regulators GRC, Newport, RI  
UNC Chemistry, Chapel Hill, NC  
UNC Biochemistry & Biophysics, Chapel Hill, NC  
Cold Spring Harbor Meeting on the Intracellular Molecular Environment,  
Cold Spring Harbor, NY  
University of Pittsburgh, Pittsburgh, PA  
University of Denver, Denver, CO  
University of Colorado, Health Sciences, Denver, CO  
U. Massachusetts, Amherst, MA  
NIH, Bethesda, MD

**May 1, 2004 – April 30, 2005**

Northern Illinois University, DeKalb, IL  
Rutgers University, New Jersey  
Johns Hopkins Folding Meeting, St. Michaels, MD  
Duke University, Durham  
University of Richmond, Chemistry

**May 1, 2003 – April 30, 2004**

Gibbs Conference, Carbondale, IL  
Microcalorimetry Conference, Atlanta  
Yale University, Molecular Biophys. & Biochemistry  
Emory University, Chemistry  
University of Kentucky, Biochemistry  
Wake Forest University, Physics  
UNC-Chapel Hill, Chemistry  
13th Conversation in Biomolecular Stereodynamics, SUNY Albany

**May 1, 2002 – April 30, 2003**

Biopolymers Gordon Conference  
FASEB Protein Folding in the Cell Meeting  
Toronto Biophysics Symposium  
Rensselaer Polytechnic, Chemistry  
Penn. State, Chemistry  
Washington University, Biochemistry  
UNC-Chapel Hill, Biochemistry & Biophysics  
NC State University, Biochemistry  
UNC-Chapel Hill, Chemistry  
Drexel University, Biology  
University of Pennsylvania, Biophysics

**May 1, 2001 – April 30, 2002**

Proteins Gordon Conference  
Reversible Assoc. in Structural Molecular Biology Gordon Conference  
Boston ACI Proteomics Symposium  
University of Virginia, Biophysics  
Washington State University, Chemistry  
Sunesis, Inc., South San Francisco  
Stanford University, Biochemistry  
Georgia Tech., School of Chemistry and Biochemistry.  
Georgia State University, Chemistry

**Patents:**

Tardigrade disordered proteins as protein stabilizers  
US provisional patent application 62/375,238, Published March 25, 2022  
Boothby T, Goldstein B, Pielak GJ, Piszkiwicz S, Brozena A

Device for particulate NMR samples in fluid  
US 8,773,130 B2  
Pielak GJ, Barnes C, Sharaf N, Young G, Pinero F, Charlton L, Seagle C

**Publications: [194, >12000 citations, H-index (Google Scholar) 63]**

Eicher JE, Hutcheson, BO, Pielak G J. 2023. Properties of a tardigrade desiccation-tolerance protein aerogel. *Biophysical Journal*, in press.

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Thole JF, Waudby C, Pielak GJ. 2023. Disordered proteins mitigate the temperature dependence of site-specific binding free energies. *Journal of Biological Chemistry*, 299: 102984.

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- Thole J, Fadero T, Bonin J, Stadtmiller S, Giudice J, Pielak G. 2021. *Danio rerio* oocytes for eukaryotic in-cell NMR. *Biochemistry* 60: 451-459.
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